What is claimed is:

1. A method for making micro-protrusions or micro-cavities on a surface of a substrate comprising the steps of:

placing said substrate in a process chamber;

supporting a mask member independent of and in front of said substrate, said mask member having a micro shielding surface; and

irradiating fast atomic beams onto said surface of said substrate through said mask member.

2. A method according to claim 1, wherein said substrate is a slider member.

3. A method according to claim 1, wherein fast atomic beams are irradiated substantially at right angle onto said surface of said substrate.

4. A method according to claim 1, wherein said mask member comprises micro-objects dispersed on said surface of said substrate.

5. A method according to claim 4, wherein said micro-objects dispersed on said substrate surface comprise

micro-powders.

6. A method according to claim 5, wherein said micro-objects comprise at least one material selected from the group comprising alumina, carbon, Si_3N_4, SiC, TiN, ZrO_2, MgO, and synthetic resin.

7. A method according to claim 1, wherein said mask member comprises a plurality of fine wire or rod members disposed in contact with or in proximity of said substrate surface.

8. A method according to claim 7, wherein said plurality of wire or rod members are arranged in parallel.

9. A method according to claim 7, wherein said plurality of wire or rod members are arranged to form a matrix.

10. A method according to claim 1, wherein said mask member comprises a plate member, having a specific pattern of cavities, disposed in contact with or in proximity of said substrate surface.

11. A method for making micro-protrusions or micro-cavities on a surface of a substrate comprising the steps of:

dispersing micro-particles on said substrate surface; and

irradiating said substrate surface with fast atomic beams at an angle of incidence determinable by a slant angle measured with respect to a rotation axis normal to said substrate surface while a beam source relatively swivels about said rotation axis.

12. A method according to claim 11, wherein said substrate is a slider member.

13. A method for making micro-protrusions or micro-cavities on a surface of a substrate comprising the steps of:

dispersing micro-particles susceptible to etching by fast atomic beams on said substrate surface; and

irradiating said substrate surface with fast atomic beams at an angle of incidence determinable by a slant angle measured with respect to a rotation axis normal to said substrate surface while a beam source relatively swivels about said rotation axis.

14. A method according to claim 13, wherein said substrate is a slider member.

15. A method for making micro-protrusions or micro-cavities on a surface of a substrate comprising the steps of:

a first irradiation step irradiating said substrate surface with fast atomic beams through a mask member consisting of parallel wire or rod members disposed in contact with or in proximity to said substrate surface; and

a second irradiation step irradiating said substrate surface with fast atomic beams through a mask member consisting of parallel wire or rod members disposed in contact with or in proximity to said substrate surface, said parallel wire or rod members are oriented at right angles or at an oblique angle to those in said first irradiation step.

16. A method according to claim 15, wherein said substrate is a slider member.

17. A slider member formed with a plurality of micro-protrusions or micro-cavities on at least one surface thereof, wherein said micro-protrusions or micro-cavities comprise top or bottom surfaces and side surfaces, and an inclusive angle of side surfaces of said micro-protrusions or micro-cavities is selected within a range of angles between 80 to 110 degrees measured with respect to the relative sliding direction of said slider member.

18. A slider member formed with a plurality of micro-protrusions or micro-cavities on at least one surface

thereof, wherein said substrate is produced through the process comprising the steps of:

placing said substrate in a process chamber;

supporting a mask member independent of and in front of said substrate, said mask member having a micro shielding surface; and

irradiating fast atomic beams onto said surface of said substrate through said mask member.

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